Spec. 101
25 July 1963

Specification For
CHIP CUTTER-VIEWER

1. GENERAL:

1.1 This specification covers the requirements for design, development and fabrication of a manually operated combination die-cutting and viewing device. The device shall be designed for viewing film frames of aerial roll film and for manually cutting selected 70mm x 100mm rectangular sections (chips) from any area of a film roll. The cutter-viewer may be configured essentially as shown in the attached illustration.

1.2 Responsibility - Responsibility for final design and complete fulfillment of the requirements shall rest with the contractor.

1.3 Preliminary Sketches - Prior to fabrication the contractor shall submit sketches of the proposed design for approval of the contract monitor. The sketches shall be in sufficient detail to adequately describe the unit and its principle functions.

2. DETAILED REQUIREMENTS:

2.1 Chip Size - The size of chip produced by the cutter shall be 70mm x 100mm with no more than ± 1% variation in either dimension.

2.2 Film Sizes and Thicknesses - The cutter-viewer shall accommodate roll film in lengths up to 250 feet; widths varying from 70mm to 9½ inches; and thicknesses varying from .003 to .007 inches. Thin film may be of mylar, while heavy weight film may be of triacetate.

2.3 Materials - Materials shall be corrosion resistant and as light weight as possible, consistent with the requirements specified herein.

2.4 Die Materials - Cutting segments of the die-cutter shall be of material capable of making not less than 10,000 cuts of the specified film

types and thicknesses without sharpening.

2.5 Film Damage - The cutter-viewer shall not scratch, distort, or otherwise damage the film emulsion or base in any manner whatsoever.

2.6 Design and Construction - The cutter-viewer shall be comprised essentially of an integrated die-cutter assembly and light table with film rewinds, mounted on a suitable support base or table, with casters. Specified movements on X and Y axes shall be provided in the film carriage to allow proper initial positioning or centering of the selected image or target and precise movement of the selected image into the die-cutter for cutting the chip. Specified azimuth movements shall be provided in the die-cutter to allow selective azimuth orientation of the base lines of chips.

2.6.1 Viewing Table - The viewing table shall consist of a rectangular metal enclosure with interior flourescent illumination and a translucent glass top surface. The viewing table shall be provided with adjustable film rewinds to accommodate rolls of film 250 feet in length and varying in width from 70mm to 9½ inches. The viewing surface shall accommodate viewing of film frames 9 x 18 inches in size. Movements of the film carriage shall be provided as specified herein. The viewing table shall be provided with interior illumination sufficient to produce not less than 1000 foot-lamberts at the top surface.

2.6.2 Die-Cutter - The die-cutter shall be manually operated and capable of accurately cutting 70mm x 100mm sections from film frames. The die-cutter shall consist of male and female die sections mounted in an appropriate arbor to assure proper accomplishment of the required cutting action. The die-cutter shall be mounted to the rear of the light table. Top surfaces of the die-cutting base and the viewing table shall be on the same plane. Movements shall be provided

as specified herein. The die-cutter assembly shall have a throat of not less than twelve (12) inches.

2.6.2.1 See Through Capability - The male section and the female section of the die-cutter shall be open to permit seeing through for viewing the transparency when it is placed in the unit for cutting.

2.6.2.2 Die-Cutter Illumination - Suitable illumination shall be provided in the base of the female die to permit viewing the photographic image through the die-cutter assembly.

2.6.2.3 Removal of Chip - A suitable trough shall be provided in the base of the die-cutter to facilitate easy removal of the chip after cutting.

2.6.2.4 Magnifier - The female die shall contain a 2X magnifier to aid in viewing the image through the cutter sections.

2.6.3 Movements

2.6.3.1 Film Carriage - In addition to rewind movements on the "X" axis provided by the two rewinds on the light table, two other movements referred to as "A" and "B" movements are required. Movement "A" shall allow forward and rearward movement of the entire film carriage on the "Y" axis for the purpose of centering the chosen target over the exact center of the viewing surface. This movement shall have a locking provision. Movement "B" shall be independent of movement "A" and shall provide for rearward movement of the entire film carriage on the "Y" axis to a fixed stop that will place the chosen target exactly over the cutting edges of the female cutting die.

2.6.3.2 Die Cutter - The die-cutter shall have azimuth movement of not less than 90° in either direction from a null point. The axis of this movement shall be precisely at the center of the die-cutter opening.

2.6.3.3 Support Base - The support base shall be of a type to adequately support the entire cutter-viewer assembly. Its height shall be such as to provide a working height of 34 inches at the top surface of the light table. The support base shall have suitable casters that can be raised free of the floor when the cutter-viewer is in use.

2.6.4 Intended Mode of Operation - It is intended that an operator will place a roll of aerial film, 250 feet in length on the light table and wind film from the full spool on one side to the empty spool on the other side. During this traverse, he will select certain specific areas of interest (targets) which will be removed from the roll by four sided die cutting, to a rectangular shape of fixed size. The resulting section of film, containing the target will be referred to as a "chip." As the film is wound across the light table on an "X" axis, the operator will stop the film at a point where the target is at the center of the illuminated viewing surface. The operator will then move the entire film carriage on its "Y" axis, either forward or backward until the selected target is exactly centered on the light table in both "X" and "Y" axes. The target will then be in the center of a 70mm x 100mm area which is to be scribed on the translucent cover glass of the light table. Movement "A" will be locked in position and the entire film carriage will then be moved to the rear by movement "B" to a predetermined and fixed stop that will automatically place the pre-chosen 70mm x 100mm area exactly between the male and female segments of the die-cutter where it will be cut by manual lowering of the male segment by means of a hand lever. The chip will fall through the lower segment of the die and slide out of the cutter through an orifice at the side called a chip chute. Azimuth rotation of the chip cutter will be provided in both clockwise

and counterclockwise direction to facilitate selective orientation of the base line of the chip.

3. INSPECTION AND TESTS:

The chip cutter-viewer shall be subjected to pre-shipment inspection and acceptance tests.

3.1 Pre-Shipment Inspection - Pre-shipment inspection shall be made by the contract monitor at the contractor's plant. Pre-shipment inspection shall be made for the purpose of determining whether the item is complete, meets the basic requirements and is ready for shipment and acceptance testing.

3.2 Acceptance Tests - Acceptance tests of the equipment shall be made by the procuring agency. Acceptance tests shall be adequate and appropriate to determine full conformance to specified requirements.

3.3 Acceptance - When it has been determined that the equipment has fully met all requirements, final acceptance will be made by the procuring agency.

3.4 Rejection - Should the chip cutter-viewer or any part, component or function thereof, fail to meet the requirements, the contractor shall accomplish such modifications as are necessary to fully meet the requirements without additional cost to the Government.

4. DELIVERY:

Delivery of the equipment shall be as specified by the procuring activity.